

## AP2200

### Dual-Channel Power Amplifier

- 136 watts per channel at 8 ohms, 1 kHz
- Independent channel selection for 8/4-ohm and/or 70-volt operation
- Ultraquiet and efficient cooling system
- Interchangeable input modules
- Illegal mode protection for mono output modes
- Linkable signal processing PCBs plug directly onto input modules
- InterActive Technology compatible

#### Description

The Electro-Voice AP2200 dual-channel power amplifier is designed for direct voice-coil drive and/or 70-volt distributed systems. Each channel can be independently configured for 70-volt line operation or 8/4-ohm systems. The two channels can be paralleled or bridged for driving a single load.

This amplifier features an ultraquiet, continuously variable cooling system which pulls air from front to rear in a directed fashion which focuses the air flow on the critical components. A removable air filter is incorporated into the front grille allowing easy access for cleaning or replacement.

The signal input module is removable and comes standard with both XLR and screw terminal connectors. Optional signal processing PCBs plug directly onto the input modules. Control module options provide compatibility and connection to E-V Audio's Interactive Technology network, allowing remote, centralized supervision and/or control of the amplifier.

Each channel is protected against load shorts, overtemperature and output DC. Front panel indicators provide a visual display of signal present, signal clip and stand by for each channel, as well as a power on indicator.

#### Architects' and Engineers' Specifications

The power amplifier shall be a two-rack-space, dual-channel amplifier providing 100 watts per channel in dual-channel mode. The amplifier will provide an incorporated means to independently configure each channel for either 8/4-ohm loads or 70-volt line operation.

The amplifier shall have a switchable configuration between dual-channel, parallel mono and bridged mono mode. The amplifier will also provide a guard against illegal mode operation with a visual indicator as well as disabling operation until channel load configurations correspond to output configuration mode. Bridged mono output mode shall provide a differential balanced signal to the speaker load.

The amplifier will incorporate a directed air flow cooling system utilizing an ultraquiet continuously variable cross-flow fan pulling air from the front and pushing air out the rear of the amplifier. The unit will provide a front accessible air filter.

The amplifier shall incorporate interchangeable signal input modules which provides for signal processing PCBs to be directly connected to the module without replacement. Input modules will provide both XLR and

screw terminal connectors in a parallel circuit. Input module pinouts shall be published information. The amplifier will provide for optional Interactive Technology control modules to be used.

The amplifier shall meet the following performance criteria. Rated power in dual-channel mode: 4-ohm = 150 watts, 8-ohm = 100 watts, 70-volt = 100 watts; rated power in parallel mono mode: 2-ohm = 300 watts, 4-ohm = 200 watts, 8-ohm = 100 watts, 70-volt = 200 watts; rated power in bridged mono mode: 8-ohm = 300 watts, 16-ohm = 200 watts, 70-volt = 200 watts, 140-volt = 200 watts.

The power amplifier shall be 482.6 mm (19 in.) wide by 406.4 mm (16 in.) deep by 88.1 mm (3.4 in.) high and weigh 13.49 kg (29.75 lb).

The power amplifier shall be the Electro-Voice AP2200.

#### Uniform Limited Warranty Statement

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified pe-

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rior to the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid.

**Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than EVI Audio Service or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer

must deliver the product, prepaid, to EVI Audio Service or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from EVI Audio Service at 600 Cecil Street, Buchanan, MI 49107 (800/234/6831 or FAX 616/695/4743). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply

to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**Electro-Voice Electronics** are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

For warranty repair, service information, or a listing of the repair facilities nearest you, contact the service repair department at: 616/695-6831 or 800/685-2606.

For technical assistance, contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. Eastern Standard time.

Specifications subject to change without notice.

### Input Card Pin Assignments

Pin #	Name	Function	Pin #	Name	Function	Pin #	Name	Function
1	VOLT_SENSE_CH1	0 to 5 V dc, load voltage channel one	12	+5V	+5 V dc supply with 100 mA capacity	21	POWER_CH1	Shorting this pin to DGND will power down entire amplifier with exception of 6 V dc supply
2	VOLT_SENSE_CH2	0 to 5 V dc, load voltage channel two	13	CLIP_CH1	0 to 8 volt signal indicating channel one clip by going high (> 4 volts)	22	AGND	Analog, fault and +15-volt supply ground reference
3	IOUT_SENSE_CH1	0 to 5 V dc, load current channel one	14	+6V	6 V dc supply with 800 mA capacity reference only to DGND	23	AUDIO_IN_CH2	Unbalanced channel two input to amplifier referenced to AGND. Sensitivity=0.775 V rms
4	IOUT_SENSE_CH2	0 to 5 V dc, load current channel two	15	CLIP_CH2	0 to 8 volt signal indicating channel two clip by going high (> 4 volts)	24	AGND	Analog, fault and +15-volt supply ground reference
5	TEMP_CH1	0 to 5 V dc, heat sink temperature channel one	16	DGND	Reference for 6 V dc supply (PIN 14)	25	AGND	Analog, fault and +15-volt supply ground reference
6	TEMP_CH2	0 to 5 V dc, heat sink temperature channel two	17	FAULT_CH1	Normally connected to PIN 9. Indicates channel one critical temp, over-current, output DC or shorted output by going high (> 5 volts). Signal norm is low (< 1 volt). Referenced to AGND	26	AGND	Analog, fault and +15-volt supply ground reference
7	AUDIO_OUT_CH1	Channel one output scaled down for 0 dBu full scale. Can be used for monitoring or line out.	18	DGND	Reference for 6 V dc supply (PIN 14)	27	AUDIO_IN_CH1	Unbalanced channel one input to amplifier referenced to AGND. Sensitivity=0.775 V rms
8	AUDIO_OUT_CH2	Channel two output scaled down for 0 dBu full scale. Can be used for monitoring or line out.	19	FAULT_CH2	Normally connected to PIN 9. Indicates channel two critical temp, over-current, output DC or shorted output by going high (> 5 volts). Signal norm is low (< 1 volt). Referenced to AGND	28	AGND	Analog, fault and +15-volt supply ground reference
9	STANDBY_CH1	Control signal turns channel one power supply on by forcing pin to AGND. Normally connected to PIN 17	20	DGND	Reference for 6 V dc supply (PIN 14)	29	CHASSISGND	Connects to chassis ground inside amplifier
10	+5V	+5 V dc supply with 100 mA capacity				30	CHASSISGND	Connects to chassis ground inside amplifier
11	STANDBY_CH2	Control signal turns channel two power supply on by forcing pin to AGND. Normally connected to PIN 17						

# AP2200 Dual-Channel Power Amplifier

Figure 1—AP2200 Rear Panel Diagram

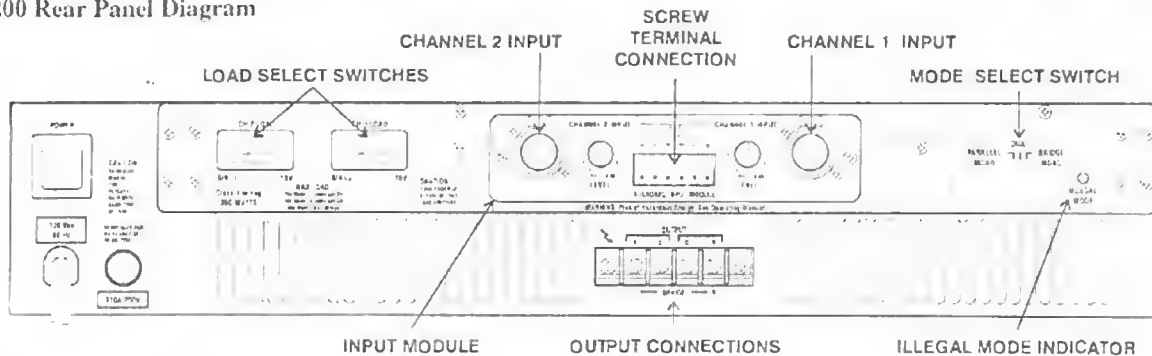
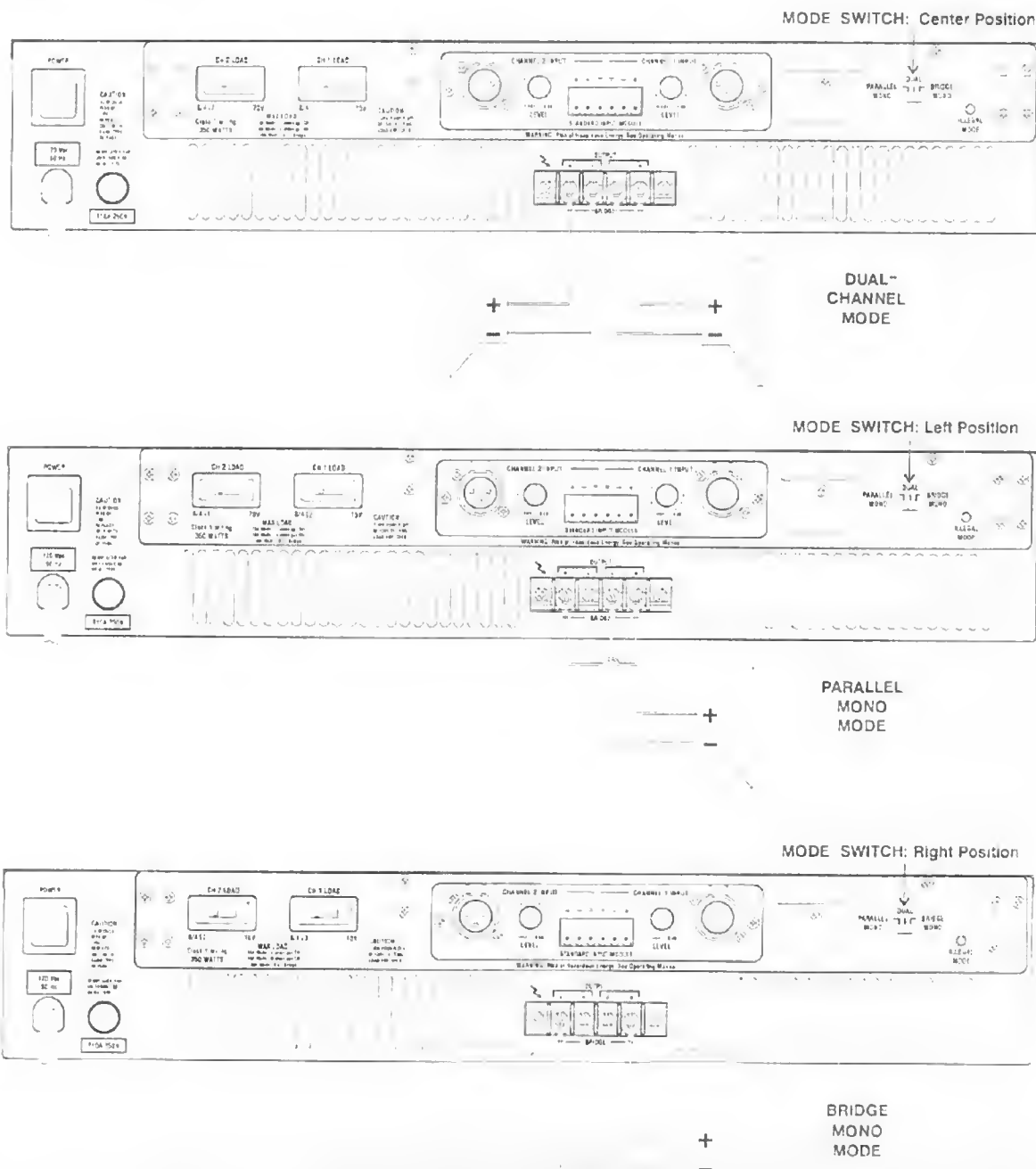


Figure 2—Output Configurations



# AP2200 Dual-Channel Power Amplifier

## Specifications

All output power specifications are for 120 V ac input power unless otherwise stated.

**Full Power, 0.1% THD, 1 kHz (30 kHz measurement bandwidth), both channels driven, 120 V ac input power.**

### Dual Mode:

4 ohm	167 watts
8 ohm	136 watts
70 volt	124 watts

### Parallel Mono Mode:

2 ohm	322 watts
70 volt	248 watts

### Bridged Mono Mode:

8 ohm	338 watts
140 volt	243 watts

## Frequency Response:

10 Hz to 80 kHz

(ref. 1 kHz, 1 watt output, +0/-3 dB)

## Power Bandwidth:

20 Hz to 20 kHz

(ref. 1 kHz, +0/-0.5 dB where 0 dB = rated output power in any mode)

## Voltage Gain (ref. 1 kHz):

### Dual Mode:

4/8 ohm	31.2 dBu
70 volt	39.2 dBu

### Parallel Mono Mode:

2/4/8 ohm	31.2 dBu
70 volt	39.2 dBu

### Bridged Mono Mode:

8/16 ohm	37.2 dBu
140 volt	45.2 dBu

## Signal To Noise: >100 dB

(A weighted) measured below rated output

## Rated Power THD: <0.1% 20-20,000 Hz

(any mode, 30,000-Hz measurement bandwidth)

## Sensitivity:

8 ohm/70 volt/140 volt:

0 dBu (0.775 V RMS)

## 4 ohm:

-1.2 dBu (0.647 V RMS)

**Input Impedance:** 20 kilohms

**Source Impedance:** 0.032 ohms

**Cross Talk:** < -70 dB at 1 kHz

**DC Offset:** < 5 mV

**Slew Rate:** 15 V/ $\mu$ sec

**Damping Factor:** >300 (1 kHz, 8-ohm)

**AC Power:** 120 V ac/60 Hz

**Minimum AC Voltage:**

95 V ac/60 Hz

## Power Consumption:

see Table 1 (below)

## Physical Dimensions:

**Height:** 88.1 mm (3.4 in.)

**Width:** 482.6 mm (19 in.)

**Depth:** 406.4 mm (16 in.)

## Weight:

13.49 kg (29.75 lb)

## Shipping Weight:

15.36 kg (33.87 lb)

**Table 1 — AP2200 Line Current, Power Consumption, Thermal Dissipation and Power Output for Selected Applications**

The following table provides guidelines for estimating heat dissipation of each amplifier, given its intended application. This data is based on the following equation:

$$P_{\text{diss}} = P_{\text{in}} + P_{\text{out}}$$

where:

$P_{\text{diss}}$  = Power dissipated in watts

$P_{\text{in}}$  = True ac mains power in watts consumed

$P_{\text{out}}$  = Total average power delivered to the load

### Measurement Conditions:

Line = 120 V ac, both channels driven equally and with equal loads for dual mode measurements

The application definitions are as follows:

**Idle:** The amplifier, soon with no signal present

**Paging/Background Music:** The amplifier is operating with one second announcements (at full power) every 15 seconds of background music which is attenuated -42 dB

**Continuous Speech:** The amplifier is operating with continuous speech that is attenuated -25 dB

**Dynamic:** The amplifier is operating with a dynamic input signal such as motion picture sound track of classical music. Loud passages are at full power, soft passages are equivalent to continuous speech.

**Full Music Power:** The amplifier is operating with continuous music input at rated output to the load with only occasional clipping.

### Application: Idle

LOAD	LINE CURRENT (A)	$P_{\text{in}}$ (W)	$P_{\text{out}}$ (W)	$P_{\text{diss}}$ (W)	BTU/HR	KCAL/HR
2-ohm parallel	37	26	0	26	89	22
4-ohm dual	41	29	0	29	99	25
8-ohm dual	41	29	0	29	99	25
8-ohm bridged	41	30	0	30	102	26
70-V dual	54	39	0	39	130	33
70-V parallel	54	35	0	35	120	30
140-V bridged	54	38	0	38	130	33

### Application: Paging/Background Music

LOAD	LINE CURRENT (A)	$P_{\text{in}}$ (W)	$P_{\text{out}}$ (W)	$P_{\text{diss}}$ (W)	BTU/HR	KCAL/HR
2-ohm parallel	76	48	27	47.7	163	41
4-ohm dual	81	51	27	50.7	173	44
8-ohm dual	83	40	18	39.6	136	34
8-ohm bridged	81	51	27	50.7	173	44
70-V dual	70	44	18	43.8	150	38
70-V parallel	66	42	18	41.8	143	36
140-V bridged	70	44	18	43.8	150	38

### Application: Continuous Speech

LOAD	LINE CURRENT (A)	$P_{\text{in}}$ (W)	$P_{\text{out}}$ (W)	$P_{\text{diss}}$ (W)	BTU/HR	KCAL/HR
2-ohm parallel	135	104	3	101	345	87
4-ohm dual	139	107	3	104	355	89
8-ohm dual	95	73	2	71	242	61
8-ohm bridged	138	106	3	103	352	89
70-V dual	88	68	2	66	225	57
70-V parallel	86	66	2	64	219	55
140-V bridged	88	68	2	66	225	57

### Application: Dynamic

LOAD	LINE CURRENT (A)	$P_{\text{in}}$ (W)	$P_{\text{out}}$ (W)	$P_{\text{diss}}$ (W)	BTU/HR	KCAL/HR
2-ohm parallel	260	226	15.9	210	717	181
4-ohm dual	243	210	15.9	194	683	167
8-ohm dual	175	145	13	132	451	114
8-ohm bridged	245	212	15.9	196	689	169
70-V dual	152	122	13	109	372	94
70-V parallel	150	120	13	107	365	92
140-V bridged	151	123	13	110	375	96

### Application: Full Music Power

LOAD	LINE CURRENT (A)	$P_{\text{in}}$ (W)	$P_{\text{out}}$ (W)	$P_{\text{diss}}$ (W)	BTU/HR	KCAL/HR
2-ohm parallel	359	335	48	287	990	247
4-ohm dual	308	344	48	296	1021	255
8-ohm dual	227	212	32	180	615	152
8-ohm bridged	309	341	48	293	1001	252
70-V dual	188	175	32	143	488	124
70-V parallel	184	172	32	140	478	120
140-V bridged	188	175	32	143	488	122

**Electro-Voice®**

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